

What is claimed is:

- 1) A nutraceutical composition comprising the following constituents:
  - an oil cake component,
  - a glucosamine component,
  - an acid component,
  - a mineral component,
  - a vitamin component, and
  - a functional food component, wherein each constituent is present in an effective proportion such that, when administered to a mammal in an effective amount, the nutraceutical composition is effective to improve fertility.
- 2) The composition of claim 1 wherein the oilcake component is selected from the group consisting of soybean flower, linseed oil cake, cottonseed oil cake, peanut oil cake, safflower oil cake, coconut oil cake, palm oil cake, sesame oil cake, sunflower oil cake, rapeseed oil cake, kapok oil cake, mustard seed oil cake, and combinations thereof.
- 3) The composition of claim 1 wherein said glucosamine component is a chemical selected from the group consisting of glucosamine sulphate, glucosamine sulfate 2KCL, glucosamine sulfate NaCl, glucosamine hydrochloride, N-acetylglucosamine, Poly-Nag. glucosamine, and combinations thereof.
- 4) The composition of claim 1 wherein said acid component is ascorbic acid and at least one derivative thereof, lipoic acid, or dihydrolipoic acid, wherein the derivative is selected from the group consisting of magnesium ascorbyl phosphate, sodium ascorbyl phosphate, sodium ascorbate, ascorbyl glucoside, and combinations thereof.

- 5) The composition of claim 1 wherein said mineral component further comprises at least one mineral selected from the group consisting of zinc, boron, chromium, manganese, and combinations thereof.
- 6) The composition of claim 1 wherein said mineral acid component is further characterized as an amino acid chelate.
- 7) The composition of claim 1 wherein said vitamin component further comprises at least one vitamin selected from the group consisting of biotin, thiamine HCL, folic acid, and combinations thereof.
- 8) The composition of claim 1 wherein said functional food component further comprises an ingredient selected from the group consisting of prebiotic, probiotic, synbiotic and combinations thereof.
- 9) The composition of claim 1 wherein the components of the nutraceutical composition are present in the following approximate effective proportions:
  - between about 50 and about 200 pbw oil cake,
  - between about 400 to 750 pbw glucosamine component,
  - between about 50 and about 150 pbw acid component,
  - between about 0.0001 and about 1 pbw mineral component,
  - between about 0.0001 about 1 pbw vitamin component,
  - between about 0.0001 and about 1 pbw of functional food component.
- 10) The composition of claim 1 in a powder dosage form.
- 11) The composition of claim 1 wherein said mammal is a male horse.

12). A nutraceutical composition comprising the following constituents:

- a) soybean flour,
- b) glucosamine sulphate 2KCL,
- c) sodium ascorbate,
- d) manganese,
- e) chromium,
- f) boron,
- g) zinc,
- h) biotin,
- i) thiamine HCL,
- j) folic acid, and
- k) a functional food component, wherein each constituent is present in

an effective proportion such that, when administered to a mammal in an effective amount, the nutraceutical composition is effective to improve fertility.

13) The composition of claim 12 wherein said mammal is a stallion.

14) A nutraceutical composition comprising the following constituents:

a glucosamine component, and

a nutrient component, wherein each constituent is present in an effective proportion such that, when administered to a mammal in an effective amount, the nutraceutical composition is effective to improve fertility.

15) The composition of claim 14 wherein said nutrient component further comprises at least one ingredient selected from the group consisting of oil cake component, acid component, mineral component, vitamin component, functional food component, and combinations thereof.

- 16) The composition of claim 14 in a dosage form selected from the group consisting of solid dosage form, dry powder dosage form, liquid dosage form, and combinations thereof.
- 17) The composition of claim 14 where in the mammal is selected from the group consisting of human, bovine, equine, caprine, ovine, and porcine.
- 18) A nutraceutical composition comprising a glucosamine component present in an effective proportion such that, when administered to a mammal in an effective amount, the nutraceutical composition is effective to improve fertility.
- 19) The composition of claim 18 wherein the glucosamine component is selected from the group consisting of glucosamine sulphate, glucosamine sulfate 2KCL, glucosamine sulfate NaCl, glucosamine hydrochloride, N-acetylglucosamine, Poly-Nag. glucosamine, and combinations thereof.
- 20) The composition of claim 18 in a dosage form selected from the group consisting of solid dosage form, dry powder dosage form, liquid dosage form, and combinations thereof.
- 21) The composition of claim 18 where in the mammal is selected from the group consisting of human, bovine, equine, caprine, ovine, and porcine.
- 22) A method for improving fertility in a mammal comprising the step of administering to the mammal gametogenesis promoting effective amount of a nutraceutical composition comprising the following constituents:
- a) an oil cake component,

b) a glucosamine component,  
c) an acid component,  
d) a mineral component,  
e) a vitamin component; and  
f) a functional food component, wherein each of the constituents is present in the composition in an effective proportion.

23) The method of claim 22 wherein the nutraceutical composition is in an oral liquid dosage form.

24) The method of claim 22 wherein the nutraceutical composition is in a dry powder form.

25) The method of claim 22 wherein said mammal is a stallion.

26) The method of claim 22 wherein said effective proportion further comprises:

- a) between about 50 and about 200 pbw oil cake component,
- b) between about 400 to 750 pbw glucosamine component,
- c) between about 50 and about 150 pbw acid component,
- d) between about 0.0001 and about 1 pbw mineral component,
- e) between about 0.0001 and about 1 pbw vitamin component, and
- f) between about 0.0001 and about 1 pbw of functional food component.

27) The method of claim 22 wherein said glucosamine component is a chemical selected from the group consisting of glucosamine sulphate, glucosamine sulfate 2KCL, glucosamine sulfate NaCL, glucosamine

hydrochloride, N-acetylglucosamine, Poly-Nag. glucosamine, and combinations thereof.

28) The method of claim 22 wherein said acid component is ascorbic acid and at least one derivative thereof, lipoic acid, or dihydrolipoic acid, wherein the derivative is selected from the group consisting of magnesium ascorbyl phosphate, sodium ascorbyl phosphate, sodium ascorbate, ascorbyl glucoside, and combinations thereof.

29) The method of claim 22 wherein said mineral component further comprises at least one mineral selected from the group consisting of zinc, boron, chromium, manganese, and combinations thereof.

30) The method of claim 22 wherein said mineral acid component is further characterized as an amino acid chelate.

31) The method of claim 22 wherein said vitamin component further comprises at least one vitamin selected from the group consisting of biotin, thiamine HCL, folic acid, and combinations thereof.

32) The method of claim 22 wherein said functional food component further comprises at least one ingredient selected from the group consisting of prebiotic, probiotic, synbiotic, and combinations thereof.

33) The method of claim 22 wherein the oil cake is a vegetable oil cake.

34) The method of claim 22 wherein the oilcake component is selected from the group consisting of soybean flower, linseed oil cake, cottonseed oil cake,

peanut oil cake, safflower oil cake, coconut oil cake, palm oil cake, sesame oil cake, sunflower oil cake, rapeseed oil cake, kapok oil cake, mustard seed oil cake, and combinations thereof.

35) A therapeutic composition for the treatment, repair, or increased production of gametocytes in mammals, comprising: therapeutic quantities of glucosamine and salts thereof, in combination with a nutrient component, for effectively promoting fertility in mammals in need thereof.

36) The therapeutic composition of claim 35, wherein the glucosamine is selected from the group consisting of glucosamine hydrochloride, glucosamine sulphate, glucosamine sulphate 2KCL, glucosamine sulphate NaCL, and combinations thereof.

37) The therapeutic composition of claim 36 in a dose, wherein the dose of glucosamine ranges of from about 1 g to about 50 g per day.

38) The therapeutic composition of claim 36, wherein the therapeutic quantity of glucosamine for horses or large mammals is approximately 20 g per day.

39) A method for improving fertility in a mammal comprising the step of administering to the mammal gametogenesis promoting effective amount of a nutraceutical composition comprising a glucosamine component in an effective proportion.

40) The method of claim 39 wherein said glucosamine component is a chemical selected from the group consisting of glucosamine sulphate,

glucosamine sulfate 2KCL, glucosamine sulfate NaCL, glucosamine hydrochloride, N-acetylglucosamine, Poly-Nag. glucosamine, and combinations thereof.

41. The method of claim 39 wherein the nutraceutical composition is in an oral liquid dosage form, or a powder form.

42) The method of claim 39 wherein said mammal is a human, horse, dog, cow, pig, or sheep.

43) A method for improving fertility in a mammal comprising the step of administering to the mammal, conception, implantation, or gestation promoting effective amount of a nutraceutical composition comprising a glucosamine component in an effective proportion.

44) The method of claim 43 wherein said glucosamine component is a chemical selected from the group consisting of glucosamine sulphate, glucosamine sulfate 2KCL, glucosamine sulfate NaCL, glucosamine hydrochloride, N-acetylglucosamine, Poly-Nag. glucosamine, and combinations thereof.

45) The method of claim 43 wherein the nutraceutical composition is in an oral liquid dosage form, or a powder form.